JAN 16 1928

SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

Volume XXVII SATURDAY, JANUARY 14, 1928 Number 681

CONTENTS

The American Association for the Advancement of Science: The Improvement of College Instruction: M. E. HAGGERTY 25

Educational Events:

Adult Education in Great Britain; Summer Schools in South America; Statistics of Education in the United States; Program of the Child Study Association of America; Yale University and New Haven College; Resources of the Ohio State University; Benjamin Ide Wheeler; The Cyrus Northrop Memorial at the University of Minnesota; The Ninth International Congress of Psychology 37

Educational Notes and News 43

Discussion:

A Standard Latin Grammar Test: MARK E. HUTCHINSON. *Another Degree?* ARLAND D. WEEKS. *Educational Advertising:* SUPERVISING PRINCIPAL 47

Books and Literature:

Knox on School Activities and Equipment: HENRY HARAP 49

Quotations:

Culture as a Prophylactic 50

Societies and Meetings:

Conference of Secondary School Administrators on Honors Work: FRANCES BRADSHAW BLANSHARD 50

Educational Research and Statistics:

A Scale for Measuring Dental Age: PSYCHE CATTELL 52

$5.00 A YEAR PUBLISHED WEEKLY 15 CENTS A COPY

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

GRAND CENTRAL TERMINAL, NEW YORK CITY

Entered as second-class matter August 15, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879

A textbook that spices the subject with adventure and romance while teaching system, comparison, and sound scientific thinking— : : : : :

THE ELEMENTS OF CHEMISTRY

by

HARRY N. HOLMES
Professor of Chemistry, Oberlin College

LOUIS W. MATTERN
Head of the Chemistry Department, McKinley Technical High School, Washington, D. C.

Captures the Student's Interest

and then makes him work without his realizing that he is really working

1. The authors see life as a thrilling scientific adventure to which a knowledge of Chemistry contributes. The contagion of this belief infects the students. Read the first pages and see if you can stop.
2. The student is initiated easily and clearly into the difficult subjects: Equilibrium, Mass Action, Balancing Equations, etc.
3. Life and interest are infused into dry subjects through linking theory with practice and introducing appealing photographs to illustrate various points.
4. The electron is introduced as early as page 135 but a fuller discussion is left to pages 493–4, –5, –6, –7. In this way it may be postponed till later or the additional pages drawn on during the year.
5. There are 245 illustrations, all attractive and effective.
6. "Problems yet to be solved" offer a novel and effective device for stimulating the student's imagination.
7. Last, but not least, the material and accompanying laboratory manual fully meet the recommendations of the College Entrance Examination Board, the Committee on Chemical Education of the American Chemical Society, and the New York State Regents.

Price, $1.80

THE MACMILLAN COMPANY

New York Boston Chicago Dallas Atlanta San Francisco

SCHOOL AND SOCIETY

Volume XXVII SATURDAY, JANUARY 14, 1928 Number 681

THE IMPROVEMENT OF COLLEGE INSTRUCTION[1]

COLLEGE curricula and instruction are to-day the subject of much concern. In the camps both of the friends and the enemies of education criticism prevails. It comes from college teachers and administrators, from students and parents and from the general public—journalists, social philosophers and taxpayers. In many respects this uneasiness of the common mind concerning the most ambitious of modern social institutions is a favorable symptom. It indicates that the college really matters; it is no longer negligible. Out of the prevailing solicitude there may come a new understanding of what the college can and should do.

CHARACTER OF THE COLLEGE PROBLEM

Since this discussion will deal with some of the vexed problems in college teaching it may be well by way of preface to state the writer's view that much of this prevailing criticism is ill-founded. He does not find any conclusive evidence to show, as many of the critics would have us believe, that college instruction has deteriorated or that the percentage of poor college teachers is any greater than it was fifty or a hundred years ago. Nor is he assured that the machinery of English and Continental education, with the severe limitations of educational opportunity that seem their necessary corollary, can be transplanted in the American college, as others contend, without a definite surrender of important values. The present-day American college is asked to meet the needs of a newly created society. To do so it must create its own measure of educational values and achieve its own standards. Teaching in the American college must in the end be adjudged by its adequacy to meet all of the demands of American youth for higher training. It must set the highest possible useful standards for the most gifted; it can not neglect the moderately endowed whose economic and intellectual status enables them to profit by some training beyond the point of high school graduation. The effective college is one which performs its total teaching task adequately. It must account for its neglects as well as for its successes. Much of the expressed discouragement with the American college arises from the failure to accept this educational philosophy, and the attempt to apply to our educational endeavors criteria that arise from an old world social philosophy. It is, therefore, abortive and futile.

In thus brushing aside ill-considered criticism, we do not intend to justify the present-day college in all its procedures. There is pressing need, for instance, for the clarification of the aims of the college curriculum. Faculties, students and the public are in bewilderment here and all are the victims of economic and social forces which we only partly understand. Like confusion prevails in regard to teaching methods. We are of many minds about all these and other matters, and the effectiveness of the college is much reduced because those in authority speak with different tongues concerning them.

It is the writer's belief that we know too little as yet about what constitutes good college teaching for us to be cavalier in

[1] Address of the vice-president and chairman of the Section of Education, American Association for the Advancement of Science, Nashville, December, 1927.

our criticisms. We may easily maintain the thesis that there is no single measure of good college instruction; the total college situation is such as to demand differential techniques and standards to meet varying student needs and variable curricular content. For this reason any generalized statement about college teaching can be shown to be false and inadequate if interpreted as universally applicable. Good college instruction for one subject or level of advancement may be bad college teaching if carried over to another field or to the more mature student years. A good teacher of freshmen may be, and is likely to be, a poor teacher in a professional school. The reverse condition doubtless also obtains. The adequate description of good college teaching must be based upon a differential analysis of the diverse teaching problems presented by the complicated intellectual factors implicit in the college curriculum and by the diverse capacities of college students. In one situation the problem is one of intellectual stimulation; in another it is educational guidance and selection; in still another it is social and personality adjustment. All these problems are shot through with variables that are only vaguely understood and that have never been experimentally explored.

Research Needed

These considerations lead to our first principle for the improvement of college teaching, which is this: Any thoroughgoing attempt at the improvement of college instruction must be founded upon a program of research rather than upon didactics. We really know too little in a scientific way about college education to be dogmatic upon many matters connected with it. Ask yourself any of the obvious questions in college teaching. Is the lecture an effective method of instruction? Is it superior to the recitation? How essential is the laboratory in teaching zoology? Are large classes inimical to student achievement? What is the nature and function of a prerequisite course or curriculum? Multiply this list *ad infinitum* and then ask yourself what facts are available by way of answer and you will be astonished at the paucity of dependable data. Search the educational journals, the official publications of national societies, the transactions of college and university associations, and only occasionally will you discover a scientifically substantiated fact amid the wilderness of stoutly defended opinion and wholly unverified hypotheses.

The writer has recently examined the published proceedings of the Association of American Universities, which presumably represents the discussion of university education at its best. In the twenty-six years of its activity (1900–1926) this organization has listened to 134 papers, chiefly from its own membership. Forty-eight of these papers have dealt with problems of curricula and instruction. Many of them are brilliantly written and are a pleasure to read. Ask the crucial question, however, what scientifically verified facts does the writer present in support of his thesis, and you experience a feeling of indelicacy and rudeness in your own interrogation. Just seventeen of the forty-eight papers present factual data for consideration. Yet the query for such supporting evidence is the inescapable question which we must now ask if we propose seriously to attack the problem of improving college instruction. And we must go from it to the sequential query, which is this: In the absence of facts how shall we set about their discovery? To the latter question science in general has devoted major attention and it must always be so as we make excursions into unexplored fields of thought. Seriously to ask these questions in connection with the improvement of college instruction is to imply the machinery of scientific study and a lengthening pro-

gram of educational research. To advocate such a program is, therefore, the primary intention of our present discussion.

IMPROVING MARKING TECHNIQUES

Coming to specific matters we may say that there can be little effective study of college teaching and little intentional improvement in it until we discard the present marking system, or supplement it with corrective devices that render it intelligible. More than twenty years ago it was clearly demonstrated that the marking system employed in most schools and colleges is statistically unreliable. Since that time scores of statistical studies have been made all confirming this fact. Notwithstanding the accumulating evidence, colleges have been slow to devise better methods and have for the most part declined to adopt the improved techniques recommended to them. So long as this situation prevails there can be no consciously directed improvement in college teaching and we are practically estopped from evaluating the results of our work just because we can not objectively discriminate good teaching from the inferior and the mediocre.

Investigation has not revealed any complete panacea for the defects of present marking systems, but two methods of improvement that promise usefulness may be commended. The first is the percentile technique of recording student standings in examinations and courses, and the second is objective examinations.

THE RANKING METHOD

The ranking method of reporting student achievement has been long discussed and in one form or another has been frequently applied in practice. Spence's[2] recent discussion elaborates the principles underlying the relative marking procedure and suggests the basic techniques that would make it applicable to most situations. By it the instructor is set a much simpler task than he is now asked to perform in the assignment of letter or percentage grades. He is merely asked to rank his students in the order in which they have mastered the subject-matter of his course, placing first that one whose achievement is greatest and last the one whose achievement is least. The interpretation of such rank order distributions is a matter of administrative policy to be carried out in a central office by means of statistical techniques and in accordance with an institution's administrative policy.

The advantages of the system are that whereas the present system presents the instructor with the impossible task of assigning meaningful letter or percentage marks, the proposed method sets him a task that is within the compass of his ability to perform, and secondly, through the centralized interpretation of the record it becomes possible to equalize the marks from all instructors and departments and for all students.

The proposed method has recently been adopted for trial at the University of Minnesota in the following form:

> For the purpose of further study of the marking system, the Committee on Education recommends:
>
> (a) That each instructor in addition to reporting marks by letters, as at present, shall report the rank of each student in his classes, such classes being understood to include all sections taking the same course during the same quarter. Whenever possible all sections should have the same examination.
>
> (b) That in classes of more than 100, the rank reported should be the percentile rank instead of the individual one.

OBJECTIVE EXAMINATIONS

Coincident with the demonstration that present marking systems are undependable has come the revelation that the traditional college examinations are subject to an ele-

[2] Spence, Ralph B. "The Improvement of College Marking Systems." Teachers College Contributions to Education, No. 252, 1927.

ment of error that all too frequently renders them ridiculous as measures of student achievement. Customarily these examinations are "set" by college instructors with the intent that the student in his answers may "show forth" his "knowledge of the subject," his "command of the English language" and his "power to think." Whether the usual essay examination ever serves these praiseworthy objectives only divine omniscience would seem to know. What is apparent to finite minds is the inability of instructors to agree upon the quality of the students' efforts to perform satisfactorily. The oft-demonstrated tendency of a single student paper to yield instructor's marks ranging all the way from perfection to failure is a fact both ludicrous and tragic. The fact has been shown for a wide range of subjects from mathematics and language to history and science and indicates that teachers have in these examinations set themselves tasks too difficult for faculty intellect to compass.

So clearly and copiously has the ambiguity of the traditional type of examination been demonstrated that we may here forego the repetition of details. The implications of all investigations in the matter may be summarized in a quotation from Wiedemann and Wood[3] in concluding their extensive analysis of examinations as now given in American colleges.

"The fundamental purpose of examinations is to secure *accurate* and meaningful information about the achievements, capacities and effective interests of individual students. Unless college grades afford *accurate* measurements of *defined* achievement expressed in terms of units which have *definite* meaning to all competent educators, they will not serve the constructive purposes which constitute the most legitimate excuse for having grades in our educational system at all.

"It is hardly necessary to say that grades in American colleges do not at the present time afford such measurements. Indeed, our survey shows beyond a doubt that at least 95 per cent. of the examinations can not possibly yield such measurements; if the examinations in our sample are representative, it seems safe to say that college examinations do not conform to any of the recognized criteria of good examinations—reliability, validity, comparability, etc. A large number of them are of doubtful pedagogical value and a significant proportion of them are obviously pedagogically unsound.

"The general indication of this survey is that college teachers and administrators have in their practice failed to appreciate both the importance and the difficulty of making good examinations and of assigning constructively useful college grades."[4]

Experiments in the field of psychological and educational measurement have not been negative merely. While they have demonstrated the unsoundness of present methods of examinations, they have also provided the techniques of injecting intelligibility into the present chaos through the development and use of objective examinations. The variety of form possible in such examinations makes them usable in widely varying types of subject-matter, and statistical techniques make it possible to describe them in terms of their reliabilities, validities and other essential attributes. Many of these forms, such as the true-false, multiple-choice, completion, matching, recall and analogy have had extended if not exhaustive analysis so that we know their possibilities and can use them with some assurance as to their meaning. If college instruction is in need of improvement, here lies at hand an instrument of great possible usefulness in the proposed endeavor.

The proposal to replace the present un-

[3] Wiedemann, Charles C., and Wood, Ben. D. "Survey of College Examinations," 1926.

[4] Wiedemann, Charles C., and Wood, Ben D. "Survey of College Examinations," 1926.

reliable examinations by objective measures of student achievement is here made without any illusions as to their limitations. That they are not perfect measures we all recognize, but that they obviate many of the defects of the present system is capable of demonstration by the same experimental and statistical techniques which have made the sciences of physics and biology grow from the older knowledges of natural philosophy and natural history. They can be scored with an exactness and clarity not possible in the usual examination. The resulting marks are independent of the personal judgment and prejudices of the examiner. They are intelligible to the student and instructor alike and when consistently used they make possible comparative ratings in terms of large numbers of individuals pursuing the same courses in different years and even in distant institutions. By their use we can now give objective evaluation to the effectiveness of different curricula and varied techniques of instruction.

The advocacy of objective examinations is a plea that education shall make use of the newly developed techniques that through wide use in related fields are transforming the sciences of psychology, sociology and biology. In all these fields statistical methods have enjoyed extensive and fruitful development in recent years. Education is privileged to share in this progress and we should be as thoughtful and conscientious in the business of teaching as we are in that of biology and medicine.

THE USE OF OBJECTIVE EXAMINATIONS

In certain quarters there has already been a generous acceptance of the new measuring devices. Witness the work of the Bureau of Collegiate Educational Research at Columbia University and the development of so-called "placement tests" at Iowa. The history of the nation-wide efforts to study the teaching of certain academic subjects shows a gradually changing attitude in the matter.

THE MATHEMATICS STUDY

The study of mathematics was organized in 1916 "for the purpose of giving national expression to the movement for reform in the teaching of mathematics."[5] The investigation was organized on the committee system. Distinguished mathematicians from colleges and secondary schools were assembled into a national committee. The field of mathematics teaching was analyzed into problems, investigations were set and certain individuals were charged with the responsibility of preparing reports. The general committee was composed of fifteen individuals, and with the agencies and individual teachers enlisted for cooperation, the number ran into the hundreds.

The report was issued in several volumes and gives evidence of the great interest, industry and ability involved in its preparation. The topics covered range widely from mathematical curricula in foreign countries to a discussion of standardized tests and the training of teachers. The report is a stimulating treatise and without doubt very helpful in its way, but one looks in vain through the report for evidence of any well-organized experimental attack upon the vital problems in mathematics teaching. Questions are raised in large number and variety and are treated at length. The reader finds here clear statement of issues, brilliant analyses, critical opinion, pooled judgment of expert teachers, but little evidence of the sort commonly required in physics, biology, or scientific psychology as a basis of dependable conclusions.

[5] Report of The National Committee on Mathematical Requirements, 1922, p. vii.

Classical Investigation

The second of the national studies was the classical investigation, evidently conceived in a spirit similar to that of the mathematics study and headed by one of the most distinguished of American scholars. Its committee roll was resplendent with distinguished names. There were committee meetings, sub-division of the field for special work, statistical studies, tentative reports, discussions, collective judgments, and publication. An examination of the resulting volumes reveals the same type of acute analysis, high claims and unanimity of attitude apparent in the mathematics report. The classical investigation, however, escaped less completely the contamination by experimental science than did the mathematics study. Experimental education had made progress in five years; its methods had penetrated the minds of some teachers of the classics who were members of the committee and almost as an afterthought, it would seem, some experimental studies were undertaken. These studies still continue and even the cherished theory of formal discipline through the study of Latin is being subjected to the laboratory method of investigation with a vigor hitherto unknown in the study of an educational problem.[6]

Modern Language Study

While the Classical Investigation was thus caught from the rear, as it were, by the experimental method, the Modern Language Study made use of scientific methods from its early stages, and the final report of the chairman of the Committee on Direction and Control is replete with the spirit of modern educational science. Excerpts from this report will point the moral better than a direct discussion.

"Even at the Princeton meeting," the report reads, "it became clear that we lacked one great tool for measuring them (objectives), *viz.*, standardized tests. As soon as we came under the influence of our adviser in Educational Psychology, Professor V. A. C. Henmon, we set about remedying this defect. With that move, we had entered on a policy which was to absorb more and more the time of the committee through the balance of the first and the whole of the second year, and a considerable part of the third year of our labors."[7]

"By means of these tests, imperfect and incomplete as they admittedly are, the committee has been able for the first time in the case of any curriculum subject to measure and record, nationally and regionally, norms of achievement by secondary school pupils. The results of this for the clarification and solution of the problems of modern language teaching will appear in detail in our published reports. This harvest is, however, insignificant in comparison with what may be done with the tests. Not the least important step during the life of the committee has been the growing recognition by progressive teachers that opinion subjectively formed is valueless unless supported by findings from tests. An active body of modern language teachers can no longer listen with patience to a program which consists of the iteration of individual opinion regarding methods or organization or the setting forth of results unless success has been measured by reliable tools such as standardized tests. It is now recognized that the only way to break up the indescribably boring character of teachers' conferences on methods is to demand that every exponent allow his wares to be tested."

"The reader will find in these reports no super-syllabus of courses and texts, no

[6] Thorndike, E. L. *Journal of Educational Psychology*, Vol. 15, 1924, pp. 1–22, 83–98.

[7] Fife, R. H. Final Report of the Chairman of the Committee on Direction and Control, Modern Language Study. *Educational Record*, Vol. 8, No. 4, pp. 252–254.

oracular declarations as to method, no final decisions on many mooted points. What he will receive in the dozen volumes which we plan is a series of documents setting forth the present situation on the basis of as complete and scientific an investigation as we are able to make and drawing from these only such deductions as seem to us inevitable. The satirical German proverb that to him to whom God gives an office, He also gives the understanding necessary to fill it, has been disproved in our case. We have received no wisdom for the solution of the age-old problems of modern language instruction, and the brevity of the time allowed to us has given no time for the carrying out of the fundamental experiments which might open the way to the solution of some of them. Throughout the reports the authors have sought to cultivate the spirit of tolerance and to avoid finality of judgment. We have husbanded our resources in order that we may publish in full the evidence on which the findings are based.

"We know that a perusal and full evaluation of studies involving tests and measurements and the other phases of mass experiments is hard work which most critics will not undertake, but we believe that it is only by way of these procedures that real progress in language teaching can be made. Fine words and oracular declarations are easier reading for teacher and school director, but they lead to no useful end. For the teacher and curriculum-maker no more than for the pupil is there a royal road to the worth-while."

It is difficult to believe that these words have been written by a teacher of the modern languages, and he one of the most distinguished, so accustomed are we to ex-cathedra pronouncements of our academic colleagues on educational matters. The quotations seem more akin to the apostolic utterances of the modern crusader for educational research. May we hope, however, that they are symptomatic of a changing academic attitude away from a complacent acceptance of traditional college practices, however brilliantly interpreted by individual experience, to an insistent desire to know the truth about educational matters in the objective and impersonal manner acceptable in other fields of science.

EDUCATIONAL DISCUSSION THROUGH EXPERIMENT

The most promising omen in the study of college instruction is the growing tendency so illuminatingly stated by Professor Fife in the passages quoted. Effective illustration of this could be drawn from several quarters, but in the further discussion I propose to draw upon certain efforts of my colleagues at the University of Minnesota. May I preface the account of experimental work with a brief statement of the organization of our Committee on Educational Research, the chairmanship of which I have been privileged to exercise through a period of several years, since the experiments to be described have been projects of this committee.

The University of Minnesota Committee on Educational Research is a non-administrative body appointed by the president of the university for the purpose of studying the problems of college education in this university. Its formal reports are made directly to him. The committee is composed of fourteen members of the university faculty, eleven of whom are administrative officers.

The committee has operated much as any other university committee, through meetings, discussions and memoranda circuited among the members of the committee. From time to time, it has carried on through subcommittees especially interested in particular research projects. For the personnel of the subcommittees it has been found desirable to go outside the membership of the general committee for the

purpose of enlisting the aid of specially interested and expertly qualified faculty members and in some cases of graduate students. Through this extension the committee has grown until it now embraces approximately forty individuals.

During the several years of its work the committee has inaugurated fourteen projects. Five of these have been carried through to completion; upon six others we have had reports of progress, and three have been merely authorized. Our present discussion will deal first with a study under project III, entitled: "Relationship of Class Size to the Efficiency of Instruction."

Class Size Project

The basic virtue of this project, which has been directed by a subcommittee headed by Professor E. H. Hudelson, is that it has substituted experimental investigation for the usual method of unhampered discussion of an educational problem. In the three years during which they have studied the problem, Professor Hudelson and his coworkers have pursued a program which has involved fifty-nine fully or semi-controlled experiments involving 108 classes under twenty-one instructors in eleven departments in four colleges of the University of Minnesota. The experiments involved 6,059 students—4,205 in large classes and 1,854 in small classes. Direct man-to-man comparisons were made upon 1,288 pairs of students, carefully matched as to intelligence and scholarship. The final criterion of efficiency was student achievement as measured by tests and examinations, most of which were objective.[8]

Class Size and Student Achievement

The special experiment to be detailed here, which is illustrative of the entire investigation, was carried through in the beginning courses in physics by Professor Henry Erikson, head of that department.

This particular experiment was in part stimulated by the general university investigation of class size; it is probably more correct to say that this was the occasion of the physics study. The cause lies deep in the prevailing condition of all our colleges and in most departments thereof by which the size of classes has been gradually but irresistibly increased. Year by year the number of students in physics classes has been pushed up from 20 to 30, to 40, to 50, to 75, to 150. Such a radical shift in teaching conditions is a genuine basis for alarm to those whose educational belief and methods have committed them to the small class idea as has been true of most of us. To test in objective fashion a teaching condition that had been forced upon them, therefore, was the real motive of the class-size experiment in physics.

The method of the experiment was the familiar one of parallel sections and paired groups. There was one section of twelve students and another section of one hundred and fifty students, including twelve that in certain objective measures were the equal of the twelve in the small group. The same instructor taught both groups by the same method. The achievement of all was checked by the same measures and independently of the instructor. The results failed to reveal any advantage to the small group.

The experiment was repeated in succeeding quarters in different units of subject matters and by different instructors and is now well on in the second year of investigation. The burden of proof is still on the small class idea.

The primary interest in this experiment is the educational matter. A second concern is the financial one and the study reveals that it costs 7.6 times as much to teach a student in the small class as it does

[8] Professor E. H. Hudelson. "Relationship of Class Size to the Efficiency of Instruction in the University of Minnesota."

his equal in the large class. Less interest attaches, however, to any detailed result forthcoming from the experiment than to the fact that this particular department is applying to its teaching problems the same scientific methods that it applies to its study of problems in physics.

THE TEACHING OF SCIENCE

The second illustration I propose to offer is chosen from the work of our subcommittee on the Teaching of Science. This subcommittee is headed by Dean E. M. Freeman, professor of plant pathology and associated with him directly and indirectly are some sixty other teachers of science in the university. The program of investigation envisaged by this subcommittee is indeed a comprehensive one and its realization will stretch into the years, but enough has already been done to justify large expectations from this concerted attack upon the problems of college science teaching. Seven experimental projects are already completed or are under way and others are imminent. The subcommittee proposes nothing less than a thoroughgoing experimental attack upon the whole curricular and teaching problem of college science by the most effective techniques which educational science can provide.

In feeling our way toward an experimental program we have accepted simple problems which promised usefulness in the development of method, and at the same time promised immediately helpful results in teaching. Two such problems arose in the medical school, one of which may be briefly described. The experimental study is the joint work of Professor C. M. Jackson, head of the anatomy department, and Mr. A. W. Hurd, secretary of the science committee.

ANATOMY

The problem arises in the first course in anatomy in the Medical School. Medical instruction has long proceeded upon the belief that every student must dissect the human body independently. The Association of American Medical Colleges requires that each student shall dissect one lateral half of the body. In some states this is even a legal requirement, prerequisite for license to practice medicine. This means that there must be a cadaver for each two students.

It is an open question whether this amount of dissection adds to a student's knowledge in proportion to its amount. Would not one half the dissection be equally effective? Apparently nobody knows even though the requirements have been legalized. This is the question which our anatomy department has submitted to experimental study. Will students working four on a body learn as much as when working two on a body? Great care has been exercised in setting up the experiment in order to secure adequate control of all factors. There was an elaborate technique in pairing students and definite control of instructional technique. The results were extensively checked with objective examinations during and at the end of the course. These tests were "practical" as well as verbal. The experiment was repeated in a second quarter. Details will not here be given, but it may be said that there was no advantage in student achievement shown to result from the more expensive method.

Again we are not here concerned with detailed findings which may or may not be confirmed by further investigation. The significant thing is the demonstrated possibility of submitting our educational problems to the techniques of experimental science. To some minds it will have the disadvantage of inhibiting discussions and dogmatism in educational matters.

In the two Minnesota experiments here reported the results have challenged with objective facts certain cherished beliefs and

in one case they call in question not merely college practices but legal requirements in education. Like fate almost certainly awaits many of our respectable traditions in college education as experimental evidence becomes available. Clearly the adventure is not for timid souls.

Improvement through Curricular Changes

The character of instruction in college, as elsewhere, is, of course, relative to the nature of the curricula offered. There is much evidence that these are now felt to be out of joint with the needs of students and the nature of modern life. The favorite indoor sport of college faculties, that of revising the curriculum, has been greatly accelerated since the war and everywhere there are appearing changes and adaptations. In a recent survey, one hundred sixty-one, or thirty-six per cent., of four hundred fifty-two colleges responding to an inquiry, make the claim that they are changing and presumably improving the curriculum. These changes range from such simple matters as the addition of new courses or the discontinuance of old ones to a complete analysis and revamping of the entire curriculum. Orientation courses, honors courses, differential curricula for students of different abilities, semi-professional courses of less than four years in length, changes in prerequisites for professional work, the progressive reduction of college courses to earlier school years, the consolidation of high school with junior college offerings, these and similar modifications have become so common that they hardly longer excite curiosity. In cases like those at Antioch, Stephens and Wisconsin we observe an attempt to change the entire curricular set-up of the college.

Despite the obvious activity in the matter of the curriculum it must be admitted that we are still in the throes of the trial and error stage of curriculum making. We generally proceed from the criterion of "best practice" as determined by a survey of offerings in reputable institutions, or from the vantage of a particular philosophy of education that implies the necessity for certain curricular offerings for all or certain students.

But does any one know that a year of freshman English really changes a student's capacities sufficiently to justify the time it requires? In what way and to what degree, if at all, is an introductory orientation course for college freshmen superior to some other curricular offering? What changes are wrought in a student through a four-, five- or six-year requirement in English that may not be achieved through some simpler and less coercive program? What does a two-, four-, six- or eight-hour per week requirement in laboratory practice add to the simpler lecture or demonstration program in introductory chemistry or zoology? To what degree does the recently extended program and highly lauded curriculum in history and the social sciences actually accomplish the results its champions so vigorously claim for it? Is an introductory course in science for college students defensible in terms of the changes it works in student intellect and attitudes? Is any one prepared to defend with objective data the wilderness of prerequisite courses into which the young student plunges upon college entrance? Certainly no one is and before these and scores of similar questions we shall stand helpless until, through long extended investigation, the processes of scientific study shall have created for us a body of educational knowledge as yet non-existent.

We can not, of course, delay our practical efforts at education until we determine the answer to our troublesome questions through experimentation. The immediate needs of the present generation of young people require that we offer the curricula

that our best judgment can devise, but the science of education requires that we clarify these problems through experimental studies in behalf of student generations yet to come. Somehow or other we must find the means by which we can substitute verified knowledge for personal and common judgment or the deductions from *a priori* hypotheses about what a curriculum ought to do to students.

Neither time nor knowledge make possible here the detailed description of curricular research. In passing, however, two lines of progress may be indicated. The first is the finer analysis, and, as situations make possible, the experimental analysis of courses content. Botany, or even botany 1, is not something definite and equally understood by all who use the term in educational discussion. It is a convenient trade name for a composite of materials and methods, and it varies from instructor to instructor, and from institution to institution, in almost unbelievable fashion, changing in content and emphasis with each student generation.

Is introductory botany a useful prerequisite for the agricultural sciences? That all depends upon the details which the term botany implies. It may be; there is a belief that it often is not. The question as stated is probably unanswerable because stated in terms that are too gross for definite reply.

Similar conditions prevail in all courses growing out of a rich and varied body of knowledge, or that are in any way affected by the growth of academic research. Analysis and definition into much finer units than are implied in the trade names bandied about in curricular discussion is essential if intelligible evaluations of curricular content is to be attained.

The second line of progress to be suggested has already received emphasis in this discussion. It is the objective measurement and evaluation of the changes wrought in a college student when he "takes," as we say, a particular curricular dosage. The naive assumption underlying college work, that every unit of the curriculum will produce some desirable or useful alteration in character or intellect if the student will only master the course is certainly to be called in question. Widespread among students is the contrary view, and alumni generally discredit the usefulness of portions of their college work. It is the business of the faculty, through research and objective evidence, to determine the degree of validity in their own assumptions and the measure in which student and alumni criticism is justified.

Improvement through Personnel Management

The improvement of college instruction is further dependent upon an improved method of dealing with the intellectual, emotional, social and vocational interests of students. It would not be true to say that personnel service is a new element in college education, because the very essence of the matter has always been the adjustment of educational machinery to the intellectual and personal needs of students. What can be said, however, is that the possibilities of such educational adjustment have been enormously improved through recently developed techniques of personnel management. The invention of intelligence examinations, tests and rating scales for non-intellectual traits, techniques for the analysis of personal and vocational interests, the case-method of social study, the techniques of mental hygiene as applied to the college problem, and the cumulative record which facilitates the aggregation of an individual's entire personal history into a single unit—all these have made possible an understanding of the college student in a discriminating fashion unthought of a decade ago. By means of these devices we can go about the diagnosis of student needs

in a manner that emulates the long developed techniques of modern medicine. As a matter of fact, educational diagnosis can now be, as it should be, more comprehensive than that in medicine for, through the recently developed student health service, the resources of modern medicine are available to the college faculty and administration as an item in its program.

Space does not here permit a survey in detail of the methods of student personnel management nor is it now possible to describe the administrative set-up by which a college may take advantage of all the new devices. Through them it is now possible to provide the following useful services:

(a) An objective and increasingly accurate determination of the intellectual capacity of college students.
(b) The scholastic interests and achievements from all previous school experiences.
(c) An analysis and evaluation of non-intellectual traits of a student, his personal and vocational interests, and the picture of his healthy and pathological emotional life.
(d) The description of the family social and economic supports and deterrents operative in his further education.
(e) The physical and disease record with indications of possibilities of efficient physical life.
(f) The unification of all these data through the cumulative record system into a single picture of student possibilities, with indications for general and remedial educational treatment.

If colleges are serious about the business of improving instruction, then the techniques of personnel service thus indicated it must somehow use. Even with the best of methods we understand all too little of human possibilities to render us any too sanguine about the effectiveness of our educational program.

The Training of College Teachers

In concluding this discussion a word may be said about the professional training of college teachers. The main thesis for which we have here contended that the improvement of college instruction must be founded upon a program of research implies that those who would be party to such improvement must have some training in the methods of collegiate educational research and in the sciences basic thereto. It was admitted early in this paper that we can not be cavalier in our criticism of college teaching. By the same token we can not claim the right to critical judgment of the methods and outcomes of educational science, nor can we profit by it in guiding our own teaching efforts, until we have at least mastered its elementary techniques and principles. Such mastery will not come of itself as an incident of graduate training or of teaching experience. It must be sought directly, with due effort and the expenditure of time quite as one seeks a mastery of mathematics or of physics. This means that some kind of definite professional training must be provided.

This matter of the training of college teachers as yet lags behind the best that is to be found in the elementary and secondary fields where it is no longer assumed that subject-matter mastery is a sufficient preparation for the difficult task of instructing students. Both the colleges where the teachers work and the graduate schools where college teachers receive their training have been singularly slow to include in the graduate training program any instruction in professional subjects. Yet a recent study reveals that the occupational destiny of from sixty to eighty per cent. of all the holders of Ph.D. degrees from American graduate schools is teaching. It is seventy-eight per cent. for Harvard, seventy per cent. for Princeton, sixty per cent. for Wisconsin, and seventy-one per cent. for California. Yet, it is doubtful if in any of these schools the recipient of this degree is regarded any less highly because of this lack of professional training for his future task. Nor is the lack of such training any

barrier to appointment to college teaching. All studies upon this question indicate an almost total indifference to this matter on the part of college administrators.

This apathy toward the adequate training of college teachers is certainly a temporary condition. Were those who direct the destinies of colleges and graduate schools not moved to avail themselves of the growing educational sciences they would most certainly be forced to do so by the increasing social pressures upon the college. Knowledge and research in this field on the part of the faculty are not merely a means to the more effective college; they are the inescapable conditions of survival.

M. E. HAGGERTY
UNIVERSITY OF MINNESOTA

EDUCATIONAL EVENTS

ADULT EDUCATION IN GREAT BRITAIN

IN the closing lecture of a series entitled "The Schools and the Nation," at King's College, London, Dr. Robert Peers, professor of adult education in University College, gave a history of the movement and a description of developments in progress. According to a report in the *London Times Educational Supplement*, Professor Peers examined the regulations of the Board of Education, issued for the first time in 1924. The board recognized for purposes of grant five types of courses under the control of a university or university college, namely: (1) classes preparatory for three-year tutorial classes; (2) three-year tutorial classes; (3) advanced tutorial classes; (4) tutorial class vacation courses, and (5) university extension courses. The most numerous were the three-year classes. These were planned to reach the standard of an honors degree; and less stress was laid on lectures, more on discussion and individual work. In the session 1923–24 there were ten such classes recognized; in the session 1926–27 there were 179 recognized, and 215 other courses not recognized.

The board also recognized certain part-time courses under the control of approved associations, namely: (1) terminal courses; (2) one-year courses; (3) vacation courses. Among "approved associations" were the Workers' Educational Association, the Education Settlements Association, the Y.M.C.A., the Welsh National Council of Music, and some local education authorities. Adult education was also promoted by the guilds of cooperative societies, by radio societies, and by the churches.

Since the war adult education had spread to rural districts. During the last ten years women's institutes had been opened in 3,500 villages, with courses in domestic subjects, in local history, and other cultural subjects. In the classes generally the range of subjects had broadened. Before the war there were 145 tutorial classes, including 74 for economics, and only 17 for literature. Last session there were 559 classes, including only 151 for economics, and as many as 117 for literature. The numbers for other cultural subjects had also increased. The provision for full-time students had also increased. Before the war there were only Ruskin College and Fircroft College at Bournville. Since the war the Catholic Workers' College had been opened, in 1923; also the College for Working Women, and the Avoncroft College for Agricultural Workers. Scholarships, too, had increased, though these were costly because provision had to be made for wives and children. The Cassel Trustees offered a few scholarships at universities and Ruskin College, at first for one term, now a smaller number for one year. Scholarships were also offered by Oxford and Cambridge Universities, and by the Central Miners' Welfare Committee; and state scholarships were recommended in the report of the Adult Education Committee. The British Institute of Adult Education is appealing for money to found scholarships for training students in tutorial classes to become tutors. It was to be hoped that the universities would create departments for training tutors.

As regards administration Professor Peers urged the importance of freedom, and the need for more funds. Block grants with freedom in allocation should be given, rather than grants for specific courses. The students, being adults, must be given scope for initiative in the choice

of studies. Finally Professor Peers expressed the belief that a great revival of adult education was beginning in Great Britain.

SUMMER SCHOOLS IN SOUTH AMERICA

PROFESSOR TOWNE NYLANDER has been delivering a series of lectures at colleges and universities, pointing out to students and teachers the advantages and possibilities of a summer trip to South America. As quoted in *The Christian Science Monitor,* Dr. Nylander calls attention to the fact that two large South American universities are opening their doors for North American summer school students during July, 1928. The University of Buenos Aires will inaugurate its first summer school on July 2, 1928, while on July 10 the University of Brazil at Rio de Janeiro will start classes of international interest especially for North American students and teachers who wish to use the long summer vacation in academic pursuits. The course at both universities will be given in English, Spanish, Portuguese and French, enabling the visitor to perfect his command of foreign languages, while at the same time acquiring authentic information to be obtained nowhere else.

At Buenos Aires, the American Club, composed of American representatives of the larger firms, are offering a series of lectures to run during the summer-school period. These lectures will be given by the managers and representatives of such American institutions as the International Harvester, the Steel Corporation, the National Cash Register, General Motors Export Corporation, the First National Bank of Boston at Buenos Aires and others.

To further facilitate the movement of the students, the Association of South American Universities has asked the Munson Steamship Lines to cooperate with them by inaugurating the popular tourist class type of accommodations on their steamers. Frank C. Munson, president of the Munson Steamship Lines, has promised to equip his ships with this tourist class of accommodations. This will enable the prospective teacher and student to make the round trip to South America, including all necessary expenses, at a minimum cost. The tuition fee at each of the universities will be $30 for the four weeks' session. While the session is but four weeks in length, it will be equivalent in every other respect to the customary six-week session of our North American universities.

STATISTICS OF EDUCATION IN THE UNITED STATES[1]

DURING the fiscal year data were collected from the states and from the outlying parts of the United States concerning public and private elementary and secondary schools. The principal items included are the number of teachers, enrolments, average daily attendance, length of school year, receipts, expenditures and value of school property. Similar data were collected from 2,900 city schools systems, from 18,703 out of approximately 22,500 public high schools, from 2,350 out of 2,500 private high schools, from 402 teachers' colleges and normal schools and from 974 colleges and universities.

Compilation of the statistics for all classes of institutions has not been completed at this date. Reports from state departments of education show that for 1925 the enrolments in public elementary and secondary schools of the various states include 24,650,291 pupils, of which number 3,650,903 were in public high schools above the regular elementary grades. The average daily attendance in these schools for the year was 19,838,384; total receipts amounted to $2,024,757,377, expenditures to $1,946,096,912 and the total value of all property used for public-school purposes to $4,252,328,900.

The expenditure per pupil in average daily attendance was $98.10 for the year. While expenditures for public schools are still on the increase, the rate of increase is gradually falling off. Growth in high-school enrolment continues at a high rate and junior high schools are being organized rapidly.

Salaries of public-school teachers are still on the increase. The average annual salary for teachers, principals and supervisors in 1910 was $485; in 1915 it was $543; in 1920, $871; in 1922, $1,166; in 1924, $1,227, and in 1925 it was $1,252. The increase from 1915 to 1920 amounts to 60 per cent., and from 1920 to 1925 to 44 per cent. The increase from 1920 to 1922 is about $148 annually, from 1922 to 1924 about

[1] From the annual report of the U. S. Commissioner of Education.

$30 annually and from 1924 to 1925 it is $25 for the year. This slowing up in the rate of increase would indicate that the peak in teachers' salaries is not far distant.

The total amount expended for public elementary and secondary schools in 1924 is 37.8 per cent. of the volume of state and local taxation, 22.6 per cent. of the whole tax burden and 2.87 per cent. of the total income of the people of the United States for that year. There is a tendency in many places to reduce school taxes and consequently school support.

The total enrolment in 402 teachers' colleges and normal schools in 1926 was 294,064, of which number 270,206, or 92 per cent., were enrolled in teacher-training courses. In all types of institutions having teacher-training work, 304,412 were enrolled in such courses in regular sessions and 494,943 is the total if summer-school students are included and duplicates excluded. If the regular students enrolled in teacher training complete the work in the usual time required in the schools in which they are enrolled, they can replace one seventh of the present teaching force in all schools in the United States annually.

One hundred and one teachers' colleges have now been organized. In 1926 about 62 per cent. of the teacher-training students in teachers' colleges and normal schools were enrolled in teachers' colleges. Teacher-training work is being taken over rather steadily by public institutions, and, with the exception of the past six years, a gradually decreasing proportion of men have been preparing for the teaching profession.

Reports were received from 739 private commercial and business schools showing an enrolment in 1925 of 188,363 students, who were being instructed by 4,105 teachers. This enrolment is a decrease from that reported for 1920, when 902 schools had an enrolment of 336,032 students. In 1924 the public high schools had 430,975 enrolled in commercial courses, which number is about twice the enrolment in similar courses in public high schools in 1916. The large enrolment in commercial work in high schools partly accounts for the reduction in the number of students in private commercial and business schools.

PROGRAM OF THE CHILD STUDY ASSOCIATION OF AMERICA

THE program of the Child Study Association of America offers the following opportunities for the first part of the present year. On January 10 at 3 P. M., at the headquarters there was a conference at which Dr. Hugh Hartshorne spoke on "Character—What Factors determine it?" On January 24, Mrs. Satis N. Coleman will speak on "Teaching Music to Little Children." Besides the regular study group programs there is an evening conference series beginning on January 9, at 8:30, at which time Dr. Lawson G. Lowrey will speak on "Discipline." The other meetings in the series at 8:30 P. M. will be as follows: January 16, Dr. Edwin A. Kirkpatrick on "The Use of Money"; January 23, Dr. Leonard Blumgart on "Self-Reliance and Responsibility"; January 31, Dr. Benjamin C. Gruenberg and Dr. Frankwood E. Williams on "Sex Education"; and on February 6, Dr. Bernard Glueck on "The Parent-Child Relationship." Staff members of the Child Study Association will lead the discussion following each lecture. There will be a special lecture and discussion series five Fridays, beginning on January 20 at 4:15 P. M., on "Scientific Ethics," conducted by Dr. Edwin A. Kirkpatrick.

On February 7 there will be a conference at 3 P. M., at which Dr. Kurt Koffka will speak on "The Gestalt Theory of Psychology"; on February 14, at 8:30 P. M., there will be a lecture on "Thumb-Sucking and its Allied Habit" by Dr. David M. Levy; on February 21, at 3 P. M., there will be another conference.

The month of March offers three conferences and one evening lecture. At one of the conferences Mrs. Henry L. Moskowitz will be chairman and Dr. Albert Shiels will speak. On March 13, Dr. Harold O. Rugg will speak on "Newer Methods in Teaching," and at the last conference in March Mrs. Robert Joselyn Leonard will speak on "Religious Training for Children." The evening lecture for March will be devoted to a discussion on "Who shall go to College?"

YALE UNIVERSITY AND NEW HAVEN COLLEGE

Yale University is further expanding her relationships with the New Haven community by active cooperation with the extensive evening educational program of New Haven College for employed men and women. New Haven College is the educational enterprise of the New Haven Young Men's Christian Association and enrolls over 700 students annually in regular courses. The Sheffield Scientific School of Yale University has placed at the disposal of New Haven College the classrooms, laboratories, drafting rooms and other facilities of the school.

The most recent development of this cooperation is that of specialized courses for industrial foremen, assistant foremen and supervisors under the name of the Industrial Institute of New Haven College. They are short-term evening courses of study sponsored by the Foremen's Club of New Haven, an organization of some 700 members, which is closely affiliated with the "Y" industrial department. One hundred and thirty-seven foremen have enrolled to date, as compared with 48 in the first courses given somewhat experimentally last year in addition to considerable groups of industrial, professional and business people in short-term or "extension" courses.

Dean Charles H. Warren, of the Sheffield Scientific School, and his staff have encouraged this program in many ways. Professors Charles F. Scott, Samuel W. Dudley and Hudson B. Hastings have had an advisory relationship. Professor Charles F. Scott has arranged for the course in electricity for foremen to be held in the Dunham Electrical Engineering Laboratory.

Rubber technology, the first of the new series of six courses, opened with Wm. H. Whitcomb, chief chemist of the footwear department of the U. S. Rubber Company, as instructor, assisted by Myrick Crane, assistant superintendent of the Seamless Rubber Company, and with 50 men enrolled.

A special course in industrial electricity deals with the factory applications of electricity under Professors W. B. Hall and A. E. Knowlton, of the electrical engineering department.

A slide rule course with R. M. Marons, engineer, Winchester Repeating Arms Company, as instructor, is a repetition of a successful class of last year.

The effective speaking course for foremen, assistant foremen and supervisors has opened in Winchester Hall under the leadership of D. C. Eckerman, of Yale.

In February courses in practical foremanship and shop management will begin with Professor Hudson B. Hastings, professor of industrial engineering in the Sheffield Scientific School, in charge.

RESOURCES OF THE OHIO STATE UNIVERSITY

Ohio State University has permanent assets of more than $16,000,000 according to the last report of Carl E. Steeb, business manager. Actual value of the physical plant, equipment and endowments is far greater than that.

Chief item in the university's assets is the buildings, of which there are 72. Of these about 50 are used for purposes of instruction. Their valuation is listed as $8,236,142.53. Many of them, however, could not be duplicated for anything like their original cost.

No new buildings for major purposes were added during the past year, most of the current increase in permanent assets being in the form of important additions to buildings. Chief among these were an addition costing $137,000 to Hamilton Hall, the medical-dental center; to Pomerene Hall, the center of women's activities, costing $151,000, and one of $110,000 to the University Hospital. The new medical, dental and hospital buildings represent an investment of approximately $1,500,000 apart from their equipment.

The university estate now consists of 1,118 acres, besides several small tracts. This land cost the state $792,000, but it is conservatively appraised at more than $2,150,000. Based on the valuation of surrounding real estate, the university land would bring far more than that sum at current prices.

The university has more than $1,000,000 invested in its roads, walks, lights, fire protection, tunnels and service lines. The university's railway, a long spur from the Hocking Valley to the campus power plant, is listed at $64,000.

Equipment is appraised at $2,907,774.27. Of

this amount, the campus library represents the largest single item. It is valued at $741,000 and contains 300,147 bound volumes.

The university's endowment, the great portion of which is part of the irreducible debt of the state, is given as $1,146,687.45. This increased less than $13,000 last year.

BENJAMIN IDE WHEELER

IN memory of the late Dr. Benjamin Ide Wheeler, for twenty years president of the University of California and president of the Academic Senate of that institution, the senate at its last meeting unanimously adopted resolutions as follows:

The Academic Senate desires to express its appreciation of what Benjamin Ide Wheeler meant to the University of California.

For twenty years he was our president. During these two decades he was in very truth the helmsman of the university's educational policy. By common consent he is ranked among the great university presidents of the nation.

From the beginning of his presidency, in consultation with faculty and regents, he clearly conceived the aims of his administration.

Himself a distinguished scholar, he always encouraged and supported scholarship. He built a great library. He called to the university men of reputation and of promise; above all, he encouraged young scholars, in whom his special interest lay. At no time did he interfere with the freedom of speech of members of the faculty.

Under his leadership there was a period of intense building activity upon the campus.

He saw the importance of bringing the university into closer relations with the state, and from this sprang the development of such activities as the Extension Division, the Summer Sessions and the College of Agriculture. To the university he served as the interpreter of the state, and no less did he interpret the university to the people; under his guidance they responded to its needs.

He believed in youth. The students were devoted to him, as he to them, for he knew and understood them. He neither drove nor coerced, but always saw through their eyes, and between them was perfect accord and cooperation. So minded, he fostered student self-government, which to him was not a simple method of discipline but a means of self-education.

A man of true learning and culture, he was also exceedingly wise and rich in knowledge of men; his judgment of them was keen and shrewd, yet sympathetic.

He spoke with eloquence and wrote with distinction.

He was deeply interested in public affairs; personally known to many of the nation's leaders and frequently called by them into council, he assisted in shaping the domestic and foreign policies of our country.

Benjamin Ide Wheeler was versatile in talent, catholic in sympathy. He saw far into the future and in large measure made his dreams realities. In executive leadership he was bold, under criticism staunch. 'Mid all the labors and trials of his office he retained his optimism and his sparkling sense of humor. Religion was an integral part of his life.

He was to the people of California the symbol and embodiment of the university.

And now we, his colleagues, pause in our deliberations to pay tribute to his memory.

THE CYRUS NORTHROP MEMORIAL AT THE UNIVERSITY OF MINNESOTA

THE University of Minnesota's long-considered plan to build an auditorium as a memorial to the late President Cyrus Northrop and as a center for general student gatherings, lectures, addresses by distinguished visitors and other large meetings is about to be realized. Bids on the new structure probably will be asked within the next month or six weeks.

The auditorium will be the second unit erected chiefly with money derived by gifts pledged during the Stadium-Auditorium campaign conducted in the fall of 1922. Out of the funds then given the Memorial Stadium has already been built and has been in use for four seasons. It was opened in October, 1924.

Approximately $750,000 is on hand with which to build the auditorium, a memorial to the man who was president of the university from 1885 until 1911. Nearly $700,000 of this has come in as payments on pledges made during the campaign, to which sum the university is adding enough from other sources to make up the total. The main structure of the auditorium will be erected now, with several large elements in the original plans left out until additional pledges are paid up.

It will stand at the head of the University Mall as designated in the plans for a new campus outlined some years ago by Cass Gilbert. Backing up to the Minnesota Union, it will occupy the ground now devoted to the pharmaceutical gardens and will look towards Washington Avenue, down the open space of lawn and trees which is flanked on either side by such buildings as the library, administration, physics and the school of chemistry. In this way it will enclose at its upper end the long quadrangle of campus which is to be the Mall.

THE NINTH INTERNATIONAL CONGRESS OF PSYCHOLOGY

The Ninth International Congress of Psychology will be held at Yale University, New Haven, Connecticut, probably in August or September, 1929.

The officers of the congress are as follows: *President,* J. McKeen Cattell, New York; *Vice-president,* James R. Angell, Yale University; *Secretary,* Edwin G. Boring, Harvard University; *Treasurer,* R. S. Woodworth, Columbia University; *Foreign secretary,* Herbert S. Langfeld, Princeton University; *Executive secretary,* Walter S. Hunter, Clark University; *Chairman of the Program Committee,* Raymond Dodge, Yale University.

In addition, the national committee includes J. E. Anderson, University of Minnesota; Madison Bentley, University of Illinois; E. A. Bott, University of Toronto; H. A. Carr, University of Chicago; Knight Dunlap, Johns Hopkins University; S. W. Fernberger, University of Pennsylvania; William McDougall, Duke University; W. B. Pillsbury, University of Michigan; C. E. Seashore, University of Iowa; L. M. Terman, Stanford University; E. L. Thorndike, Teachers College, Columbia University; H. C. Warren, Princeton University; M. F. Washburn, Vassar College; and R. M. Yerkes, Yale University.

This is the first meeting of the congress in America. The previous meetings have been as follows: Paris, 1889; London, 1892; Munich, 1896; Paris, 1900; Rome, 1905; Geneva, 1909; Oxford, 1923; Groningen, 1926. Plans were instituted for a congress in America in 1912 and an organization was effected with William James as president, J. McKeen Cattell and E. B. Titchener as vice-presidents, and John B. Watson as secretary. The difficulties in the way of securing the attendance of foreign psychologists proved to be serious, and the war then intervened, so there was no congress from 1909 to 1923 when at Oxford and at the Physiological Congress at Edinburgh scientific men from all nations were for the first time since the war invited to take part in international congresses.

At the Oxford Congress a preference was expressed for a congress in America in 1926, but it was finally held in Holland. The congress of next year follows an invitation of the American Psychological Association decided on at the Philadelphia meeting a year ago. A committee on organization was then named and the officers and other members of the national committee were elected by a nominating and a formal ballot of members and associates of the association. At the recent Columbus meeting the plans for the congress were adopted and a meeting was held of the national committee, eighteen of the twenty-one members being present.

It is expected that the congress of 1929 will be the largest gathering of psychologists in the history of their science, which does not long antedate the first congress held in Paris in 1889, the first chair of psychology in any university having been established at the University of Pennsylvania in 1888. The American Psychological Association was organized in 1892, with twenty-six members, some of whom would not now be classed as psychologists. There are at present some six hundred members and two hundred associates, all of whom are or have been engaged in professional psychological work.

America surpasses every other country, perhaps all countries combined, in the number of its psychologists, and it is here that educational psychology has received its chief development. We are relatively backward in several other departments, such as medical and industrial psychology, so the congress should be of special value to all who take part in it. Provision will so far as possible be made to assist in defraying the cost of travel for foreign members by lectureships and similar engagements.

EDUCATIONAL NOTES AND NEWS

AFTER thirty-five years of service as professor of government at the College of the City of New York, Dr. Stephen P. Duggan will retire from active duty at the college at the end of the present academic semester and devote himself entirely to the work of directing the Institute of International Education. His colleagues and friends contemplate giving him a testimonial dinner at the end of January in recognition of his services as an educator and a citizen.

DR. WILMER KRUSON, formerly director of the department of health of the city of Philadelphia, has taken up his work as president of the Philadelphia College of Pharmacy and Science.

B. M. GONZALES has been appointed acting dean of the Philippine College of Agriculture at Los Baños.

PROFESSOR CLARENCE W. MENDELL, dean of Yale College and Dunham professor of the Latin language and literature, has been elected a trustee of the American Academy in Rome.

DEAN WILLIAM E. SMYSER, of Ohio Wesleyan University, was the recipient of the honorary degree of doctor of laws from Hamline University on the occasion of the installation of Dr. Alfred F. Hughes as president of the institution in December.

AT the Christmas meeting of the American Psychological Association in Columbus, Ohio, a dinner was given by twenty-five psychologists for Professor Margaret F. Washburn, of Vassar. Professors Bentley, of Illinois; Langfeld, of Princeton; Yerkes, of Yale; Pillsbury, of Michigan, and Mull, of Sweetbriar, spoke and Professor Warren, of Princeton, presented to Miss Washburn a volume of studies in her honor. When completed, it will contain contributions from a number of eminent psychologists in addition to those who spoke at the dinner. The dedication of the volume reads as follows: "To Margaret Floy Washburn, teacher, editor, author, scientist, twenty-five years professor of psychology at Vassar College, the editor of *The American Journal of Psychology*, on completing thirty-three years of distinguished service to psychology, this volume is dedicated by her colleagues."

DR. FRANK AYDELOTTE, president of Swarthmore College, and Willis J. Abbot, a member of the editorial board of *The Christian Science Monitor*, have been elected trustees of the World Peace Foundation.

JOHN A. SEXTON, formerly superintendent of schools at Bisbee, Ariz., on January 1 took over the superintendency of the schools of Pasadena, California. Mr. Sexton succeeds Mr. John F. West, who will serve as deputy superintendent until next June when his one-year term expires.

RAYMOND R. HUTCHINS, principal of the Franklin School, Santa Barbara, was recently promoted to the position of director of research of the city school system.

ANDREW P. HILL, assistant superintendent of schools in San Jose, California, has been named to head the division of school-house planning for the reorganized California State School Department.

DR. A. F. HARMAN, formerly superintendent of education in Montgomery County, Alabama, on January 1 assumed the office of director of educational administration for the state of Alabama. In his new work, Dr. Harman acts as consulting specialist on problems of administration and supervision which the school boards of the state may present for solution.

H. M. CORNING, of Trinidad, Colo., has been elected superintendent of schools at Colorado Springs. Mr. Corning is succeeded by Mr. Gilbert S. Willey. Mr. Willey, in addition to his work as superintendent, will also act as director of the Trinidad Junior College.

M. CHANNING WAGNER, principal of the high school at Wilmington, Del., has been elected president of the Delaware Education Association, to succeed Mr. W. H. Jump.

DR. J. F. BUCKLEY, for the past thirty-six years president of La Plata Board of Education, has resigned that position. Dr. Buckley is seventy-three years of age.

DR. GEORGE D. STRAYER and Dr. N. L. Engelhardt are being assisted in the work of the Florida Educational Survey by members of the faculty of Teachers College, including Director R. J. Leonard, Professors W. C. Bagley, M. B.

Hillegas, E. S. Evenden, Carter Alexander and Paul R. Mort.

Miss Mary C. Baker, of San Diego, California, has been appointed dean of women at Fresno State College. In addition to her work as dean of women, Miss Baker will be a member of the department of education, and will give courses relating to Americanization and social guidance.

Dr. Clawson Y. Cannon, of the Iowa State College, has been appointed dean of the summer session of Brigham Young University.

Dr. Carter V. Good, professor of education at Miami University, has accepted an invitation to offer graduate work in secondary education during the coming summer session at the University of Michigan. Dr. Good is serving as a member of the year-book committees of the department of superintendence and the National Society of College Teachers of Education.

Dean Will Grant Chambers, of the school of education of the Pennsylvania State College, will be absent from the country during the second semester on sabbatical leave. Dean and Mrs. Chambers will spend the half year in making a tour of the world, including several months in the Orient.

Dr. A. R. Mead, of the department of education of Ohio Wesleyan University, has leave of absence during the present academic year on account of ill health.

During the past two months Richard H. Simpson, associate director of the London office of the American University Union, has been in the United States as the guest of the Institute of International Education. The offices of the union in London, Paris and Rome are maintained and administered by the institute as its headquarters in those centers. Mr. Simpson has been visiting a number of the colleges and universities in the East and Middle West. He will sail for London about the middle of January.

The Institute of International Education also announces the expected visit of Baron Alexander von Meyendorff, of the School of Slavonic Studies and of the London School of Economics, who is sailing from London on the *Laplan*[illegible] on January 21. Baron von Meyendorff has been invited to give the Culver lectures at Brown University in February and at the same time will lecture at neighboring universities. Later he will lecture in some of the larger universities in the west and on the Pacific Coast.

Dr. J. Leighton Stuart, president of the Yenching University, is visiting the United States for the purpose of consulting with the authorities of Harvard University in regard to an Institute of Chinese Studies, a graduate school at Yenching University, Peking, and at Cambridge, for which an endowment of one million dollars has been obtained.

Mrs. Anna L. Fisher, of New York City, has accepted an offer to serve in the ministry of education of the government of Irak, the British Protectorate in Arabia, where she will engage in social service work and assume charge of an orphanage recently founded there. Until April 1, when her new duties officially start, Mrs. Fisher will remain in Europe, preparing for her work and studying the Arabic language.

Nominations to fill four new directorships created by recently enacted by-laws and new salary schedules of the New York City Board of Education have been announced. The nominees in each instance are of individuals who have been doing the work of the new positions for some time under special assignment. Albert G. Belding, who has been serving as a teacher assigned to the high-school division for several years, was named director of commercial subjects. The position carries a salary of $6,000 a year. Joseph L. Beha has been nominated assistant director of modern languages at $6,000 a year. Sidney Lake, an assistant to the principal, has been assigned to the office of superintendent of schools, and John A. Murray, in charge of appointments and transfers, to the position of assistant administrative director at annual salaries of $6,500. Each will continue in his present place and perform the duties he has been doing under special assignment for several years. The board failed to fill the directorship of educational and vocational guidance, for which there are two candidates, Charles M. Smith, high school coordinator, who is at present looking after placement work, and I. David Cohen, principal of the Brooklyn Boys' Continuation School.

PROFESSOR CARL V. WOODBURY, head of the department of physics at Norwich University, has been appointed chairman of a committee on the relation of the National Education Association with the colleges of the country with the object of promoting closer relations. Dr. J. W. Crabtree, secretary of the association, has made a statement in which he says: "Every college and university has been requested to appoint a representative, and more than half of them have already complied with this request. The college is now the weakest link in the organized teaching profession. While college professors have been devoted and loyal to their technical groups, they have not, as a rule, been greatly interested in problems relating to the larger fraternal welfare. This is one of the reasons why colleges have been so slow in readjusting salaries to meet increased costs and new conditions. College instructors receive the lowest pay in the profession in proportion to the type of service to be rendered. The National Education Association urges better salaries for instructors and professors and better instruction in the freshman and sophomore years."

THE third mid-year Rural Education Conference, sponsored by the extension department of Colorado State Teachers College, will be held on January 26, 27 and 28. Dr. George A. Selke, president of the State Teachers College, St. Cloud, Minnesota, and Mrs. Marie Turner Harvey, professor of rural education, State Teachers College, Kirksville, Missouri, will be the principal speakers. Dr. Armentrout, Professor McCowen and Professor Pooley, of the college, will also address the conference.

AMONG the lecturers and conference leaders for the Institute of Politics at Williamstown, Mass., the eighth annual session of which will be held from August 2 to 30, are Graham Wallas, London economist and educator and author of "The Great Society" and "Human Nature in Politics"; Dr. Otto Hoetsch, of Berlin, a German historian and authority on Russia; Dr. Leo S. Rowe, of the Pan-American Union, Washington; Dr. George H. Blakeslee, professor of history and international relations at Clark University; Professor E. M. Borchard, of Yale University, an authority on international law; Professor C. R. Fay, of the University of Toronto, an authority on agricultural questions, and Dr. Raymond L. Buell, of the Foreign Policy Association, New York City. Other leaders, together with the lecture and conference topics, will be announced later. The complete program will be issued next spring.

AT a dinner of the National Council of Administrative Women in Education in New York City on January 5, the principal speaker was Dr. W. Carson Ryan, Jr., professor of education at Swarthmore College, who gave an address on the "Locarno Conference of the New Education Fellowship." Dr. Harold Rugg, of Teachers College, Columbia University, led the discussion.

DR. THOMAS S. BAKER, president of Carnegie Institute, at Pittsburgh, Pa., has accepted an invitation to give five lectures in Paris under the auspices of the Carnegie Endowment for International Peace.

DR. GEORGE D. STRAYER, of Teachers College, Columbia University, spoke before the section of education of the American Association for the Advancement of Science at the recent Nashville meeting. His subject was "The Present Status and Outlook in the Scientific Attack on Problems of Educational Administration."

A CORRESPONDENT writes in regard to the late Professor J. W. Kuhne, of the Romance language department of Miami University, whose death was announced last week, that "he was a native of France, educated at Montpellier University and later a graduate student at Harvard and the University of Chicago. He taught at Northwestern University first and he came here fifteen years ago last September. In recent years he has been giving courses in art appreciation and the history of art as well as in Spanish and French. His gracious and cultured personality has been a durable influence for good in the lives of all who knew him."

THE establishment at Stanford University of the West Memorial Library as a permanent tribute to the late Professor Victor J. West is planned by the department of political science. Professor West's own collection of books will form the nucleus for this library, which will be housed in a room in the Political Science Build-

ing. The sum of $1,500 has been subscribed for additions to the collection.

The Reverend Dr. Flavel S. Luther, president-emeritus of Trinity College, Hartford, Connecticut, died in Pasadena, California, on January 3, aged eighty-three years.

Lemuel Spencer Hastings, formerly professor of English at Dartmouth College, was killed by an automobile on January 5. Professor Hastings was seventy-nine years of age.

The School Service Building of the American Museum of Natural History, erected by the City of New York, will be dedicated on January 17, at 8:15 in the evening. On this occasion the William Henry Maxwell Memorial will be unveiled.

With the January issue, the *English Journal* appears in two editions. The regular edition is devoted to the work of the senior and junior high schools, and the "College Edition" to English in higher education.

On Friday, December 30, the Institute of International Education held a conference of the foreign students who are in the United States this year on the international exchange fellowships administered by the institute. The conference was held at the offices of the institute, 2 West 45th Street, New York City, and was attended by students from Czechoslovakia, France, Germany, Hungary and Switzerland. After the formal conference program and a general discussion of student problems the students were entertained at a dinner at the Men's Faculty Club at Columbia University followed by a social evening of dancing.

Acting on suggestions made by the League of Nations and the American committee on intellectual cooperation, the American Council on Education, which recently completed a survey and report on one hundred and twenty-five American agencies concerned in an exchange of professors and students in different countries, offered funds for a similar fact-finding study of various European agencies. While the sum immediately involved is said to be small, it provides the means of greatly simplifying arrangements for foreign study.

The sixteenth annual conference of educational associations was held at University College, London, from December 29 to January 6, under the presidency of Sir Michael Sadler, who took as the subject of his presidential address "The Educational Outlook." Among the groups which are holding meetings in connection with the conference are the Association of Head Mistresses, the Parents' National Educational Union, the Association of University Women Teachers, the League of Nations Union Education Committee, the Modern Languages Association, the Association for the Reform of Latin Teaching.

By a majority vote of 31,000 of the citizens of Cincinnati the University of Cincinnati receives an appropriation of $1,425,000. The money will be used for a new building for the college of education and for additions to the library, recitation hall and power plant.

A million dollar fund to be used for the study of the diseases of men and women of middle age has been given to the University of Chicago by Albert D. Lasker, former chairman of the United States Shipping Board, and Mrs. Lasker. It is hoped that through research it will be possible to increase the life expectancy of persons fifty or more years old, who have reached the age "when their intelligence is at the highest and their value to the community is at its greatest." With the Lasker endowment the total donations to the University Medical School have been brought to more than $25,000,000.

The Associated Press announces a substantial gift to the Battle Creek College by Mrs. Mary F. Henderson, of Washington, wife of former Senator John Henderson, of Missouri, the money to be used in the interest of race betterment. The gift was made at the close of the recent Race Betterment Conference. Mrs. Henderson has been keenly interested in the race betterment movement for thirty years. Three months ago she presented the college with $200,000 and a deed to a 4,000-acre farm in Missouri. The combined gifts will be used to promote the work of the college; to provide lectures on the subject of race betterment, and to spread information relative to the promotion of health and the prolongation of life.

Dr. Jacob Gould Schurman, American Am-

bassador to Berlin, has started a subscription for the reconstruction of the buildings of the University of Heidelberg, the estimated cost of which is $400,000. About half of this amount has already been raised.

WILLIAM COOPER PROCTER, of Cincinnati, has given $2,500,000 to the Children's Hospital of the city, to be used in research work in pediatrics and for construction of a new building.

C. C. DULA, president of the Liggett and Myers Tobacco Company, has given $200,000 to be added to the endowment fund of Duke University.

BEREA COLLEGE has received a gift of $150,000 for a new gymnasium from Mr. and Mrs. Charles Ward Seabury, of Chicago.

A LECTURESHIP in the school of medicine of Vanderbilt University has been established by Bernard Flexner in honor of his brother, Abraham Flexner. Mr. Flexner has set aside securities yielding an income of $2,500 a year, and has contributed an additional sum of $5,000 to enable the school to inaugurate the series during the academic year of 1928–29.

INCORPORATION papers have been filed at Pontiac, Mich., by George G. Booth, newspaper publisher of Detroit, for the Cranbrook Foundation, to complete development of an educational and cultural center comprising five schools and a church on his country estate, twelve miles north of Detroit. The sum involved is more than $6,500,000 and in addition Mr. Booth and his wife, Ellen Scripps Booth, daughter of the late James E. Scripps, who founded the *Detroit News* in 1873, already had given more than $5,000,000 to the same project. In establishing the foundation, Mr. Booth has completed the task of disposing of almost his entire property.

MRS. KATHERINE EDDY BEVERIDGE, of Washington, D. C., has given $50,000 to the proposed $1,000,000 endowment fund for research of the American Historical Association. Friends of Albert J. Beveridge, former Indiana Senator and historian, are raising another $50,000 which, with Mrs. Beveridge's contribution, will constitute the Albert J. Beveridge Memorial Fund. Mrs. Alice Griswold, of Radnor, Pennsylvania, has contributed $25,000.

A FUND of $100,000, the interest on which will be used for the education of young Japanese in the United States, has been created by the family of Edgar A. Bancroft, ambassador to Japan, following the passage of the American immigration law. The money comes from Mr. Bancroft's estate, and its use in this way is in accordance with his wish. A committee of Japanese business men, all of them graduates of American universities themselves, has been named as trustees of the fund.

DISCUSSION

A STANDARD LATIN GRAMMAR TEST

THIS test is an attempt to measure one of the immediate objectives of Latin instruction in the high school, *i.e.*, the functional knowledge of Latin syntax. It consists of fifty exercises, of which 30 are case and 20 mood constructions. These constructions were chosen on the criteria of (1) presence in ten commonly used first-year books and (2) frequency in high school Latin. When constructions chosen were not found in all of the first year books, they had a high frequency in high-school Latin or, at least, a higher frequency than some of the constructions in all the books. The frequency of the constructions was derived from Lee Byrne's "The Syntax of High-School Latin" (Chicago, 1918). In addition, two very difficult constructions were introduced, *i.e.*, constructions with a very low frequency and found in only a few of the books.

Three techniques were devised, using as words those found common to thirteen first-year books and present also in the Latin usually read in the high school. After a provisional trial of these three techniques, the multiple choice type was chosen, as it proved to be reliable and to be the most objective and easily administered of the three types.[1] The other two techniques

[1] Below is an example of the technique adopted. The student is instructed to check the Latin sentence which is a correct translation of the English sentence.

"He surpasses all in loyalty.
Is omnes fidem superat. ( )
Is omnes fide superat. ( )
Is omnes in fide superat. ( )
Is omnes in fidem superat. ( )"

were the matching exercise and the pure recognition type.

The test was given to about 475 students in two forms and was proved to be reliable, having a coefficient of correlation of $.854 \pm .008$.

The validity of the test was determined on the basis of the five criteria: (1) Objectivity; (2) Reliability; (3) Discrimination; (4) Comparison with criterion measures; (5) Inferences concerning validity based upon the structure of the test and its administration.

In scaling the test the percentages correct for each construction were converted into P. E. values, the zero point established at -3.8 P. E. and scale values calculated for each construction.

February norms in the form of median number of correct responses were calculated for each semester from 1 to 7 inclusive. Norms are now available for about 800 students in Form I and 1,250 for Form II. It will be desirable to establish June norms as well as February norms.

This test measures knowledge of Latin grammar throughout the entire high-school course. It might be advisable to construct tests for each year of the course, based on the constructions which are most frequently met in each year, if such constructions could be scientifically determined.

Mark E. Hutchinson

Cornell College,
Mt. Vernon, Iowa

ANOTHER DEGREE?

Has not higher education too few degrees, at least to be faithful to academic status as the thermometer is to weather, and too many for the simple life? But as one would expect more support for a proposal to add a degree than to dispense with any, and, indeed, since professional degrees exist as descriptive of fitness for technical employments, as with civil engineers and dentists, and thus are likely to continue forever, it seems best to favor another degree, of non-professional type.

The new degree, let it be proposed, is to be conferred upon all and sundry who attend reputable institutions of learning of collegiate grade and who do pursue and actually complete with intelligent appreciation and detectable results of culture or vocational proficiency any course or courses whatsoever therein.

The degree would be unique in that it would neither represent nor pretend to represent a like amount of work for each and every student securing it. One student would have it for many terms of advanced work in bacteriology, another, a man of forty, for six intensive weeks of sociology, still another, a middle-aged woman for a brief period of attendance in the school of home economics.

The possessors would have it for an enlargement of their education, under the most delectable of assumptions, to wit, that they went to college to learn and went away when filled.

Try to picture the new day—with the new degree functioning. Probably some of the regular professors would not be able to stand the shock; these could be segregated with the more sensitive future four-year alumni. Some of the buildings, of oldest tradition, could be barricaded; in these rallies could be held. But new thousands would go to college, oh, for a while, and ask questions; and respectability would be added to the host who have already attended college, but not for four years, and whose satisfaction in achieving so much is dampened by consciousness of not having stayed long enough to be among the elect.

Be careful not to confuse this suggestion with the espousal of the junior college degree; this goes that idea one better, for junior college proponents employ quantitative and semestral references, and appear to envisage a clientele merely of youths who but for the junior college would sink without a life preserver between the high school commencement address and advanced learning, while the sentiment back of the new degree is favorable to adult education, indeterminate attendance, and all sorts of first aid courses for the embattled hosts of democracy.

No formal exercises would be needed for bestowing the distinction in question, the credential being of the nature of the routine papers of a registrar's office; it would just be handed to the student. If he returned and pursued additional courses, notations would be added, and if the document finally became mussy, a total replacement might be had with summariza-

tion of studies and proficiencies; but no bands playing and no procession when the Co. S. (College Student, or Collegiate Status) is conferred. Only the gratified consciousness of the possessor that he has attended for cause an institution of higher learning and that by leaving when he did he eased the perplexed public in its struggle to decide the question of numbers in colleges.

ARLAND D. WEEKS
NORTH DAKOTA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS

EDUCATIONAL ADVERTISING

IN view of the findings set forth in the recently published book on advertising, "Your Money's Worth," and those of the similar article in *The Nation* entitled "Honesty in Advertising," it is interesting to note a recent adventure into the "high power sales" field by a university instructor. A professor of education distributed widely the announcement that a prize of one thousand dollars would be awarded to the person in educational work who submitted the most satisfactory list of "Excellencies as achieved, and Errors as made in Teaching and in Managing Schools."

The first page contains typical "appeal copy," and shows a Buick sedan, an attractive home and pictures of a European trip as the possible rewards of the judicious expenditure of the prize money. In addition, the chance for further study is held forth as another means of utilizing the rich remuneration.

The rules of the contest follow and clarify the matter greatly, only those, they tell us, "who have already read (or who may hereafter read)" the donee's book on "Beginning Teaching" are eligible. No mention is made of judges, but the prospective entrant is reminded that the author secured much of his education through studious application to winning contests. Several paragraphs extol the book, without the reading of which no one may compete, yet no publisher's name is given to enable a contestant to purchase it directly. There is, however, a blank that when filled out and supplemented by a check will bring the volume from the author, postpaid.

Perhaps the teaching profession has overlooked a golden opportunity to realize a quick moving of its products and the ambitious among us have turned to the patent medicine industry for sales lessons. At any rate the professor whose book needs pushing is beginning a very interesting experiment and one which may be of assistance to those who contemplate writing an educational text in the future.

SUPERVISING PRINCIPAL

BOOKS AND LITERATURE

School Activities and Equipment. By ROSE B. KNOX. Boston, Houghton Mifflin Company.

THE modern school is becoming an institution devoted to activities. Furthermore, it is attempting to reproduce the conditions of life, as far as possible. These tendencies in school procedure have the effect of raising school supplies to a place of far greater importance than they have occupied in the past.

Until the Progressive Education Association devoted a special issue to the environment for creative education in June, 1927, the subject of equipment was scantily treated, chiefly, in books on the new curriculum of the elementary school. At the same time, Miss Knox had in press "School Activities and Equipment," which deals for the first time in a comprehensive and systematic way with the special problem of instructional materials and equipment for the modern school.

If the public schools of the nation pay any attention to her book we should expect a considerable increase in the appropriation for supplies. At the present time only two and a half per cent. of the total cost of education goes to supplies and text-books. Furthermore, Miss Knox's book demonstrates that the business of selecting supplies requires a high order of special intelligence which the present purchasing officers of public school systems do not possess.

The author undertook to describe completely the acceptable materials and equipment actually used in good schools. The inventory was the result of personal observation of many schools; of discussion and correspondence with many teachers; and of study of a vast amount of trade literature. Consequently we have, here, an impartial expert's catalogue of approved materials to be consulted by administrative offi-

cers and by teachers. The suggested supplies are so comprehensive that one can not help thinking that a great amount of labor went into the writing of the book. The whole range of the curriculum is covered: from books, sanitary equipment, and furniture, to motion pictures. The longest and strongest chapter is devoted to constructive activities and materials. I have not dwelt on the introductory discussions of the several chapters, which are good, because Miss Knox's real contribution consists of the inventories of materials which she has compiled.

The book has one limitation for which the publisher and not the author is responsible. The bulk of the book, which consists of descriptions of materials, is set in fine type, while the discussional material is set in clear type. Thus, the reader who will be most interested in the former is penalized. It seems to me that the publisher should have made a larger book with uniformly large type.

Henry Harap
Cleveland School of Education

QUOTATIONS

CULTURE AS A PROPHYLACTIC

With much ingenuity and force, Professor Paul Shorey, in a recent number of School and Society, presents a new defense for cultural training in the universities. He concedes that the world to-day is not safe for humanistic scholarship. The scientific disciplines press triumphantly forward. Only a very small minority would presumably stand with Professor Shorey in refusing to exchange Homer and Sophocles and Plato for "a forest full of Darwins and a whole menagerie of Einsteins." That is a personal point of view which he refuses to press. What he does offer is a compromise with the times in teaching the humanities to a civic purpose. He does not ask us to consider the individual expansion and riches which the cultural studies bring. He argues for liberal training as a public utility. He concentrates on the rôle of rhetoric in a democracy, using "rhetoric" in its original broader meaning to cover general cultural training, including logic, that should enter into the art of persuasion.

With the spread of democracy the masses of mankind have become more susceptible than ever to the influence of "mere" rhetoric. They are helpless before sophistry and pseudo-science. They lack immunity against fashion and propaganda. It is this badly needed immunity that Professor Shorey calls upon the universities to supply. Their primary business should not be to teach some of their students how to persuade their fellowmen, but to teach all of their students how not to succumb too easily to persuasion.

There is little, if any, endeavor to create a body of educated opinion that would make irrelevance, unfair emotional appeal and demonstrable fallacies a dangerous indulgence for any leader who wishes to command the attention and respect of his fellows.

That object can be promoted by a proper drill in rhetoric which would supplement, even if it can not take the place "of the broader, critical and historical study of humane letters which is the only complete discipline of the reason." Rhetoric can not help making itself acquainted with what has been written and declaimed in the past.

Actually, it may be questioned whether the masses of mankind are as helpless before the easy talker as is commonly assumed. The scientist can argue that his own pursuits afford a rigorous preparation against sensationalism and claptrap. In behalf of the man who has never been to college or high school it might be shown that life itself is a pretty good immunizing agency against elocution. If American audiences accept the demagogue and the ranter, the reason would be often American good-nature rather than simple-mindedness. Nevertheless, the value of special preparation can not be denied. It certainly should help, as against the soap-boxer of 1928, to know how many of his tricks and his formulas were "old stuff" back in the days of Cleon and Alcibiades.—*The New York Times.*

SOCIETIES AND MEETINGS

CONFERENCE OF SECONDARY SCHOOL ADMINISTRATORS ON HONORS WORK

President Aydelotte invited a group of secondary school administrators of the Middle Atlantic States to a conference on honors work

at Swarthmore College on December 14. The program included speeches by President Aydelotte, Mr. Philip Kerr, secretary of the Rhodes Trust, and two parents of Swarthmore students —Dr. Abraham Flexner, secretary of the General Education Board, and Mrs. Dorothy Canfield Fisher, novelist and publicist. Interest in both subject and speakers brought to the conference 250 school administrators and teachers representing 72 schools.

In opening the meeting, President Aydelotte stated the purpose of the conference—to ask the help of the schools in the difficult task Swarthmore is attempting, "to raise the level of the academic work done in the undergraduate course." He said, "We are trying to do this by giving to those students who have ability and ambition an opportunity to go their own pace, instead of holding them back to the pace of the average, and we are trying to make sure, that for the undergraduate degree, they should attain a certain mastery of a limited field of knowledge."

But students can take full advantage of honors work only when they have learned in secondary schools to study intelligently and eagerly. Are the secondary schools ready to single out the unusually able and ambitious students and encourage them to go beyond the routine of school work, and find learning an adventure? Given the proper stimulus, these students could complete in the usual period of preparation most of the elementary work now left for the first two years of college. They could enter college equipped for regular university study. Their course would not be shortened, simply they would gain time for advanced work.

There is no suggestion, said President Aydelotte, of a change in the requirements for admission to college, or of any wide-spread reform. Just as small groups of individuals have been the basis of the Swarthmore experiment in honors work, so a few outstanding students should be chosen for special treatment in the schools to prepare them to take advantage of the best opportunities in college.

Dr. Flexner, in his address, said that he is interested in honors work at Swarthmore as an experiment designed to improve the quality of American education. The stupendous numbers in America have brought to the fore the quantity problems of educational machinery, and have blinded educators to the qualitative problem of "finding and developing superior talent and genius." This problem of quality can be solved only by experiments which, like the one at Swarthmore, look away from numbers to a small group. Such limited undertakings are essentially democratic because, if successful, they will produce leadership of great value to the general public.

The necessity of forgetting quantity in the interests of quality is recognized as the first step toward scientific discovery. The scientist has to neglect the numbers suffering from cancer or diabetes, and confine his attention to the experiments in his own laboratory. When at last he finds a cure, he can disseminate it for the relief of thousands of people. But he could not have attacked his problem on a grand scale. A successful qualitative experiment in education was carried through by the Johns Hopkins Medical School. The founders decided upon what seemed an impossible program in 1876. They would accept only students who had had a four-years' college course, including "at least two years each of physics, chemistry, and biology, and a reading knowledge of French and German." Critics said that there would be no students—the country was not ready for such a venture. But Johns Hopkins has always had students, has never lowered its requirements, but has brought the institutions which criticized it up to its own standards.

The unpredictable success of Johns Hopkins should, Dr. Flexner said, encourage experimenters at Swarthmore and in the secondary schools to disregard the question whether the country at large is ready for honors work. Certainly, if the schools will help, one hundred and fifty boys and girls can be found every year to come to Swarthmore, and to show by what they accomplish "the kind of babyishness that prevails in the country at large." Any one who considers such a scheme undemocratic should revise his conception of democracy, and see "that it consists in giving a career to talent."

The third speaker, Dorothy Canfield Fisher, explained why, as a parent and a citizen, she is interested in the project of reading for honors.

As a parent, Mrs. Fisher said she wants for

her children an education which gives them "a chance of forming civilized habits of mind, so that it will seem just as natural for them to go on to try to increase their intellectual education as to improve their stroke at tennis." This chance is offered by honors work, with its opportunities for developing independence and joy in intellectual activities. On the side of physical training the ordinary college course succeeds. Students now are not content, as their grandfathers were, to grow fat and stodgy after they leave college. "They have learned . . . the value of sport and active exercise, that it is more fitting to keep in good physical condition than not, and that the need of keeping so is important." Why do they not see the need of keeping in good intellectual condition? Because the college has made education appear to be a matter not of intellectual exercise, but of "shoving over the counter a certain number of credits . . . of punching a time-clock up to the student's twenty-second year." The result has been appalling "sterility of intellectual life." The college should offer what honors work makes possible—adequate leadership under which the student can begin self-education.

The advantages which a mother desires for her children, a good citizen wishes to see extended to as many other children as are capable of enjoying them. This extension is valuable from the mother's point of view also, since it provides for her children the intellectual companionship which saves them from priggishness. The extension to as many children as possible is essential in a democracy which depends for its ultimate welfare on the fitness of every member to put forth his best efforts.

Reading for honors will have a second democratic value in attacking "a popular idol which lurks in many hearts in this country, that it is really not the thing to be clear-headed and intellectual." Witness the saying, "C is a gentleman's mark." This opinion will disappear as more young men "with strong, active, vigorous minds realize what it is to have genuine intellectual processes."

A discussion followed, largely devoted to the question, "Are the methods of honors work applicable to the secondary school?" Reports showed that the method has already been tried in several secondary schools with marked success.

The following speakers contributed to the discussion: George A. Walton, principal of George School; Dr. Mather A. Abbott, headmaster of Lawrenceville School; Dean Frederick J. V. Hancox, of Lawrenceville School; Carroll Brown, Westtown School; Miss Ruth Wanger, head of the history department at the South Philadelphia High School for Girls; Mr. Hunter, Friends' Seminary, New York; Dr. Richard M. Gummere, headmaster of Penn Charter School; Dr. Carmon Ross, principal of Doylestown High School; and Dr. Lucy L. W. Wilson, South Philadelphia High School for Girls.

The last speaker of the afternoon was Mr. Philip Kerr, secretary of the Rhodes Trust. He pointed out that the problem of education is being approached from almost exactly opposite ends in England and America. America tries to give every one as much education as possible. The English system concentrates on the intensive training of a small number. The systems should be combined to provide completely for the needs of a democracy.

A democracy must have leaders, and therefore its system of education must liberate and develop talent, producing "originality, independence, imagination and leadership of the right kind." But the progressive leaders will fail to stir the citizens of a democracy unless they also are well-educated. "One of the perils of modern democracy is that the average man, the low-brow, becomes convinced and is told by politicians, that he is the source of all wisdom," and so resents criticism of himself and of the state. Democracy must be protected against mass unintelligence by increasing through education "the proportion of people who have the moral courage to think for themselves."

Frances Bradshaw Blanshard
Swarthmore College

EDUCATIONAL RESEARCH AND STATISTICS

A SCALE FOR MEASURING DENTAL AGE

Dentition has been recommended as the best available method for determining the general

physical development of children. Thus, Bean,[1] who has published the most extensive work in the field, writes:

> The teeth are more convenient and more exact as a means of determining the physiological standard than stature, or weight, or growth of bones, or secondary sexual characteristics, etc., and they may be of greater value than any other means that can be utilized. The teeth can be counted and identified by almost any one after a little experience and they are either present or absent, therefore, very definite.

Beik[2] writes:

> It would perhaps not be too much to say that from among all the factors which may and should be considered for such a purpose, dentition is the best single indicator of the stage of physical development which a child has reached at any time during these early years, or, as some would state it, of physiological age.

And Mateigka[3] says that dentition gives a precise indication for evaluating the development of the body.

The purpose of this paper, however, is to set forth a scale for measuring dental development, not to argue that dentition should replace other measures of growth, for it is believed that if a reliable index of general development is to be attained it must include not one, but many phases of growth.

Tables giving the dates of eruption of the individual teeth are to be found in the literature, and several studies have appeared recently using the total number of teeth erupted as a measure of dentition in correlation studies. But a careful search brought only one study to light, that of Mateigka's referred to above, in which an attempt was made to base standards on the total dentition. His method was found to be reliable for group measurements, but was not satisfactory for the study of the individual child.

As part of the extensive study of the growth of children conducted under the direction of Professor Walter F. Dearborn at Harvard University, a large number of dental records have been obtained which offer opportunity for the study of methods of measuring dentition.[4] The examinations used in the construction of the dentition standards were made by J. Murry Gavel, D.D.M., of Boston, with a limited amount of assistance from William Jones, D.D.M., of Newtonville.

The standards which follow are based on the total number of permanent teeth which have broken through the gums regardless of which they are or how far they have developed. The data were classified according to race, sex and age. The racial stock from which each child had descended was determined mainly by the birth place of the parents, but the name, complexion and religion were also taken into account. Only those of North European (excluding Jewish) descent (7,835 cases) are included in the standards. The ages were recorded to the nearest month, and the age groups used cover a period of six months. The mid-point of an age interval is used in the following discussions to indicate the group. Thus the age group 5–9 includes all children whose ages were recorded as between 5 years and 6 months and 5 years and 11 months, inclusive, and 6–3 includes all from 6 years and 0 months to 6 years and 5 months, inclusive, etc.

The form of the distribution of the number of erupted permanent teeth varies with age. At the age when they are just beginning to erupt the distributions are skewed, the frequencies piling up at 0, 1 and 2. As the children become older, the distributions are markedly multi-modal, due to the fact that the length of time elapsing between the eruption of one tooth and the next varies at different stages of development, the tendency for the teeth to erupt in pairs being especially noticeable. The piling up is on the even numbers, especially at 6, 10 and 12. The range in the number of teeth increases with advance in age up to eleven—at

[1] "The Eruption of the Teeth as a Physiological Standard for Testing Development." *Pedagogical Seminary*, Vol. XXI, Dec., 1914, p. 612.

[2] "Physiological Age and School Entrance." *Pedagogical Seminary*, Vol. XX, 1913, p. 302.

[3] "L'âge dentaire comme signe du développement total." *Revue Anthropologique*, Vol. XXXI, 1921, pp. 333–335 and 258 and 260.

[4] A more extensive study of dentition giving a detailed account of the collection and treatment of the data is to be published by the Harvard University Press under the title "Dentition as a Measure of Maturity."

10–9 and 11–3 it is from 8 to 28 and the curves are almost flat; the tendency for the frequencies to be greater at the even numbers still persists, but is less marked. After 11 the range again decreases and the curves begin to be skewed to a greater and greater extent, until the oldest age group, 14–9, is reached when 88 per cent. of the girls and 74 per cent. of the boys have 28 teeth, while less than 1 per cent. of the total have more than 28. This is, of course, due to the fact that in the majority of children of this age all the teeth with the exception of the third molars or wisdom teeth have erupted and that in most children these do not begin to erupt until some years later.

The irregularity of the distributions makes the calculations of a measure of central tendency difficult. Medians were used, but a median calculated by the usual formula would not give an accurate result if applied directly to the distributions owing to the tendency of the teeth to erupt in pairs, causing a greater frequency on the even than on the odd numbers. This error was corrected by adding a small fraction to each of the medians.

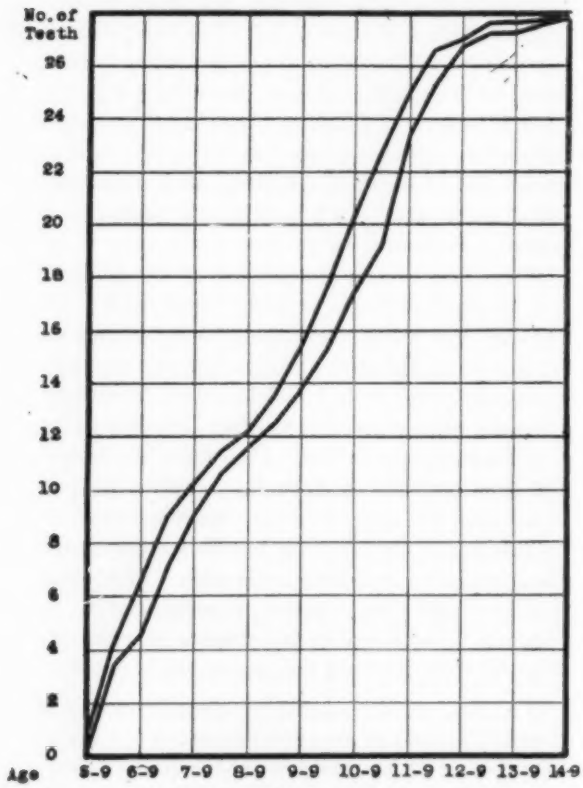

FIG. 1. The number of teeth erupted at each age—the upper curve for girls, the lower for boys.

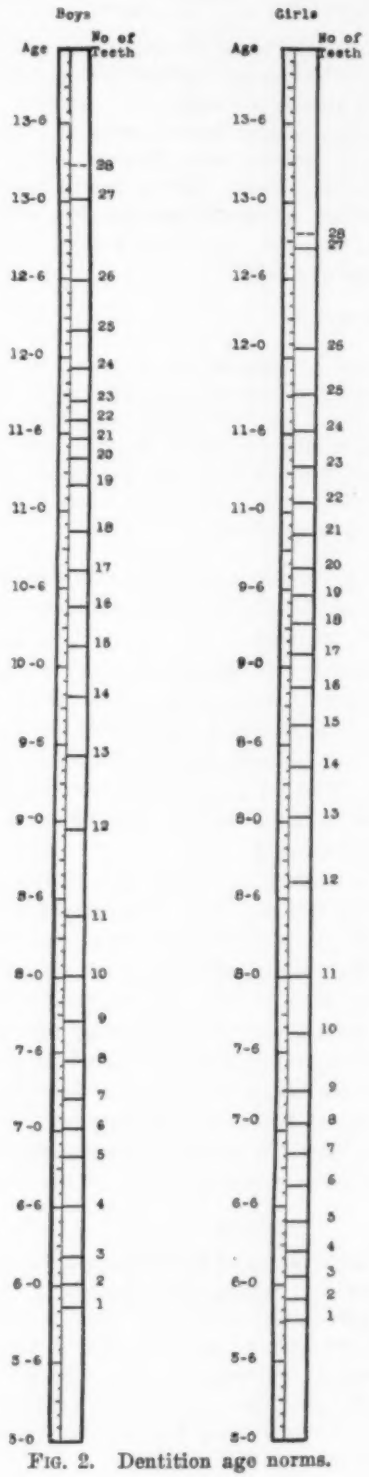

FIG. 2. Dentition age norms.

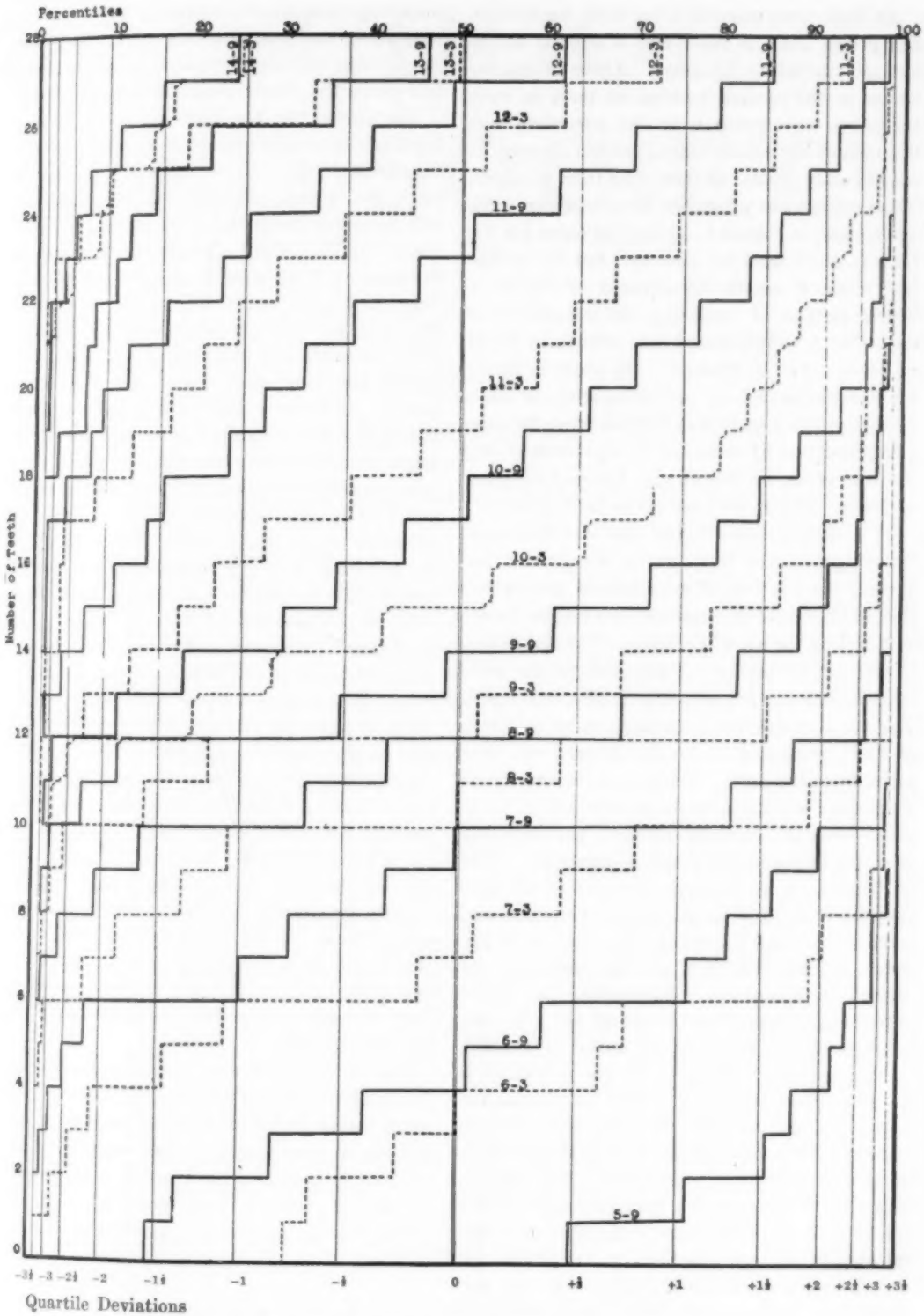

FIG. 3. Dentition quartile deviations and percentiles for different ages.

Medians were calculated for each six months age group from 5 years and 6 months up to but not including 15 years. There is an increase in the median number of teeth in each successive age group over the preceding one throughout the entire range, but the increase is considerably greater at some ages than at others. The medians are given for boys and for girls, age by age, in Figure 1. Using the norm for the boys as a standard the girls are, roughly speaking, about 6 months in advance of the boys.

The method of recording the dentition was such that a child's record was always in whole numbers, never in fractions. In order to facilitate comparison of any individual with the norm for his group a table was derived from the age-group medians by means of interpolation giving the age norm, or dental age, for each number of teeth. The results are given in Figure 2.

If a child's chronological age and the number of permanent teeth which are present are known, the amount of acceleration or retardation in his dental development can readily be determined by the use of the chart. The child's age is first located on the left-hand-side of the scale and the norm for that age is read off opposite. The norm subtracted from the number of teeth actually possessed gives the amount of deviation from the norm. Since a given number of teeth does not mean the same amount of deviation from the norm at all ages, the deviation in terms of months is easier to interpret. This is determined by locating the number of teeth erupted in a child on the right-hand scale and reading the age for which this number is the norm on the left side, giving what may be termed his dental age. Subtracting the child's chronological age from his dental age gives the amount of his deviation in terms of months.

This still does not give all the information desired. How much can a child vary from the norm and still be normal? For this purpose some measure of dispersion such as the standard or quartile deviation is desirable. The calculation of such a measure from the data under consideration offered more difficulties than the calculation of the medians. As previously stated, many of the distributions do not approach the normal curve, some are skewed and others are multi-modal. From such distributions any measure of dispersion is likely to be misleading and is of doubtful value. Such measures were, therefore, entirely dispensed with and percentile charts constructed in their stead.

The curves for the boys are shown in Fig. 3. Each curve includes a six-months age range, the vertical scale representing the number of teeth, the upper horizontal scale the percentiles and the lower horizontal scale the quartile positions. In a normal distribution the quartile deviation or Q includes 25 per cent. of the cases, $\frac{1}{2}Q = 13.2$ per cent., $1\frac{1}{2}Q = 33.4$ per cent., $2Q = 41.1$ per cent., $2\frac{1}{2}Q = 45.4$ per cent., $3Q = 47.8$ per cent. and $3\frac{1}{2}Q = 49.1$ per cent. Perpendicular lines have been erected at these points. With their aid it can readily be determined how many quartile deviations a child departs from the norm for his age group. For example, John Doe's age is 8 years and 3 months and 7 of his permanent teeth have erupted. By reference to the curve labeled 8–3 we find that his percentile position is between 7 and 11 and that his Q – position is – 2, that is to say 7 per. cent. of the children of his age, sex and race have fewer permanent teeth than he has, 4 per cent. have the same number, 89 per cent. have more than he has and he deviates from the norm by twice the amount of the quartile deviation in the negative direction. This method of determining Q – positions is more subject to errors due to accidental variations than if the quartile deviations could have been calculated, but it avoids the error that would be introduced due to the fact that the deviations are frequently greater on one side of the median than on the other. To take an extreme example, note that in the curve for the age group 7–9 the 25th percentile child has 6 teeth, the 50th percentile child 10 teeth and the 75th percentile child also has only 10 teeth.

The curves for the girls are similar to those for the boys, except for the fact that the teeth erupt earlier in the girls, causing a greater proportion to have any one tooth erupted at any age and to have, on the average, a larger total number of erupted teeth until the teeth are found to be present in practically all the children.

PSYCHE CATTELL
GRADUATE SCHOOL OF EDUCATION,
HARVARD UNIVERSITY

No. 681

y to be
ch mea-
d with
r stead.
n Fig.
range,
ber of
centiles
e posi-
quartile
e cases,
cent.,
., 3Q =
Per-
these
deter-
ild de-
. For
months
d. By
d that
11 and
7 per.
d race
4 per
. have
m the
devia-
hod of
ject to
if the
ulated,
oduced
e fre-
n than
e, note
e 25th
centile
d also

those
e teeth
r pro-
at any
r total
h are
ll the

ELL